

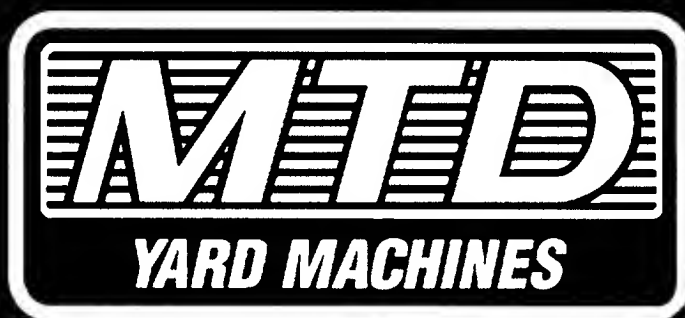
OWNER'S GUIDE

AMERICAN
M A D E



AMERICAN
O W N E D

OUTDOOR POWER EQUIPMENT



Important: Read Safety Rules and Instructions Carefully

**VARIABLE SPEED
REAR ENGINE
RIDING MOWERS**

**Model Series
560 and 561**

WARNING: This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester for the muffler is available through your nearest engine authorized service dealer or contact the service department, P.O. Box 368022, Cleveland, Ohio 44136-9722.

MTD PRODUCTS INC • P.O. BOX 368022 • CLEVELAND, OHIO 44136-9722

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OPTIONAL ACCESSORIES AVAILABLE

The following **grass catchers** are available as optional equipment for the riding mowers shown in this manual.

Model 190-038 for 30" Rear Discharge Deck

Model 190-073 for 30", 32" & 38" Side Discharge Deck (Model 190-063 with 190-435 mounting kit can also be used)



WARNING: The mower should not be operated without the entire grass catcher or chute deflector in place.

NOTE: Under normal usage bag material is subject to wear, and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

For replacement bags, use only factory authorized replacement.

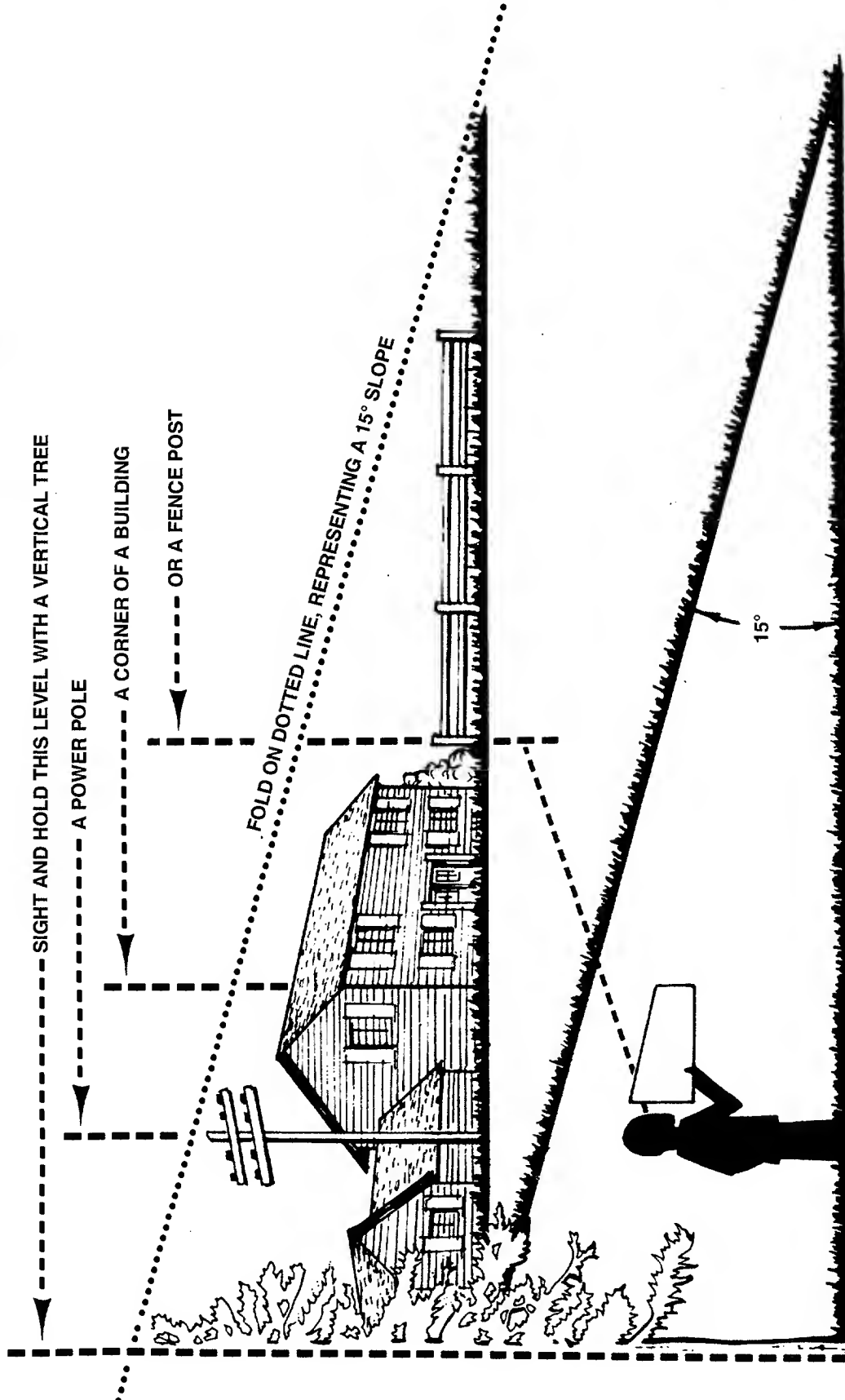
A **30" Mulching Kit** Model 190-093 is available as optional equipment for 30" side discharge deck.

A **38" Mulching Kit** Model 190-096 is available as optional equipment for 38" side discharge deck.

SLOPE GAUGE

(Keep this sheet in a safe place for future reference.)

USE THIS SHEET AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2-1/2 feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

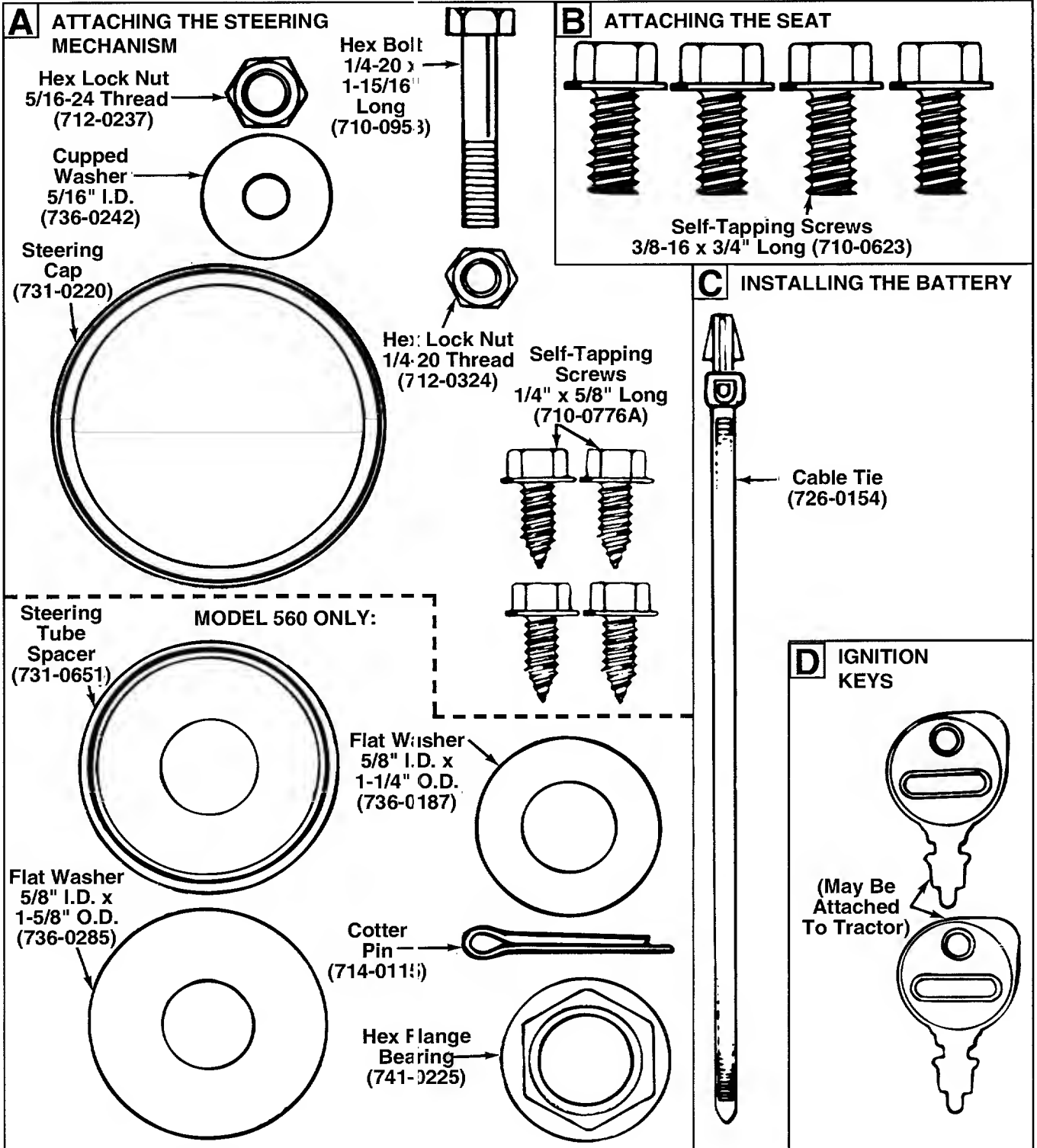
Operate RIDING mowers up and down slopes, never across the face of slopes.

Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

CONTENTS OF HARDWARE PACK

Remove this sheet from your owner's manual and lay the hardware on the illustration for identification purposes. After assembly, keep the Slope Gauge which is on the reverse side of this sheet for future use.

(Hardware pack may contain extra items which are not used on your unit. Part numbers are shown in parentheses.)




Cut Along This Line



IMPORTANT

SAFE OPERATION PRACTICES



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR UNIT. WHEN YOU SEE THIS SYMBOL—  HEED ITS WARNING.



DANGER: This cutting machine is capable of amputating hands and feet and throwing objects. Failure to observe the following safety instructions could result in serious injury or death.

I. GENERAL OPERATION

1. Read, understand, and follow all instructions in the manual and on the machine before starting. Keep this manual in a safe place for future reference and for ordering replacement parts.
2. Only allow responsible adults familiar with the instructions to operate the machine. Know controls and how to stop the machine quickly.
3. Do not put hands or feet under cutting deck or near rotating parts.
4. Clear the area of objects such as rocks, toys, wire, etc. which could be picked up and thrown by the blade. A small object may have been overlooked and could be accidentally thrown by the mower in any direction and cause injury to you or a bystander. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair, to protect eyes from foreign objects. Stop the blade(s) when crossing gravel drives, walks or roads.
5. Be sure the area is clear of other people before mowing. Stop machine if anyone enters the area.
6. Never carry passengers.
7. Disengage blade(s) before shifting into reverse and backing up. Always look down and behind before and while backing.
8. Be aware of the mower and attachment discharge direction and do not point it at anyone. Do not operate the mower without either the entire grass catcher or the chute guard in place.
9. Slow down before turning. Operate the tractor smoothly. Avoid erratic operation and excessive speed.
10. Never leave a running machine unattended. Always turn off blade(s), place transmission in neutral, set park brake, stop engine and remove key before dismounting.
11. Turn off blade(s) when not mowing.
12. Stop engine and wait until blade(s) comes to a complete stop before (a) removing grass catcher or unclogging chute, or (b) making any repairs, adjusting or removing any grass or debris.
13. Mow only in daylight or good artificial light.
14. Do not operate the machine while under the influence of alcohol or drugs.
15. Watch for traffic when operating near or crossing roadways.
16. Use extra care when loading or unloading the machine into a trailer or truck. This unit should not be driven up or down a ramp onto a trailer or truck under power, because the unit could tip over, causing serious personal injury. The unit must be pushed manually to load or unload properly.
17. Never make a cutting height adjustment while engine is running if operator must dismount to do so.
18. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts. Do not wear loose fitting clothes or jewelry. They can be caught in moving parts. Never operate a unit in bare feet, sandals, or sneakers.
19. Check overhead clearance carefully before driving under power lines, wires, bridges or low hanging tree branches, before entering or leaving buildings, or in any other situation where the operator may be struck or pulled from the unit, which could result in serious injury.
20. Disengage all attachment clutches, thoroughly depress the brake pedal, and shift into neutral before attempting to start engine.

II. SLOPE OPERATION

Slopes are a major factor related to loss of control and tip-over accidents which can result in severe injury or death. All slopes require extra caution. If you cannot back up the slope or if you feel uneasy on it, do not mow it.

DO:

Mow up and down slopes, not across.
Remove obstacles such as rocks, limbs, etc.
Watch for holes, ruts or bumps. Uneven terrain could overturn the machine. Tall grass can hide obstacles.
Use slow speed. Choose a low enough gear so that you will not have to stop or shift while on the slope. Always keep tractor in gear when going down slopes to take advantage of engine braking action.
Follow the manufacturer's recommendations for wheel weights or counterweights to improve stability.
Use extra care with grass catchers or other attachments. These can change the stability of the machine.
Keep all movement on the slopes slow and gradual. Do not make sudden changes in speed or direction. Rapid engagement or braking could cause the front of the machine to lift and rapidly flip over backwards which could cause serious injury.
Avoid starting or stopping on a slope. If tires lose traction, disengage the blade(s) and proceed slowly straight down the slope.
For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit on that area or serious injury could result.

DO NOT:

Do not turn on slopes unless necessary; then, turn slowly and gradually downhill, if possible.
Do not mow near drop-offs, ditches or embankments. A wheel over the edge or an edge caving in could cause sudden overturn.
Do not mow on wet grass. Reduced traction could cause sliding.
Do not try to stabilize the machine by putting your foot on the ground.
Do not use grass catcher on steep slopes.

III. CHILDREN

Tragic accidents can occur if the operator is not alert to the presence of children. Children are often attracted to the machine and the mowing activity. Never assume that children will remain where you last saw them.

1. Keep children out of the mowing area and in watchful care of an adult other than the operator.
2. Be alert and turn machine off if children enter the area.
3. Before and when backing, look behind and down for small children.
4. Never carry children. They may fall off and be seriously injured or interfere with the safe machine operation.
5. Never allow children under 14 years old to operate the machine. Children 14 years and over should only operate machine under close parental supervision and proper instruction.
6. Use extra care when approaching blind corners, shrubs, trees or other objects that may obscure vision.

IV. SERVICE

1. Use extra care in handling gasoline and other fuels. They are flammable and vapors are explosive.
 - a. Use only an approved container.
 - b. Never remove gas cap or add fuel with the engine running. Allow engine to cool at least two minutes before refueling. Do not smoke.
 - c. Never refuel the machine indoors.
 - d. Never store the machine or fuel container inside where there is an open flame, or spark, such as a water heater, space heater, clothes dryer and the like.
2. Never run a machine inside a closed area.
3. Check frequently and keep nuts and bolts, especially blade attachment bolts, tight and keep equipment in safe working condition.
4. Never tamper with safety devices. Check their proper operation regularly. Use all guards as instructed in this manual.
5. To reduce fire hazard, keep machine free of grass leaves or other debris build-up. Clean up oil or fuel spillage. Allow machine to cool before storing.
6. Stop and inspect the equipment for damage if you strike an object. Repair, if necessary, before re-starting and operating the machine.
7. Never make adjustments or repairs with the engine running.
8. Grass catcher components are subject to wear, damage and deteriorate, which could expose moving parts or allow objects to be thrown. Frequently, check components and replace with manufacturer's recommended parts when necessary.
9. Mower blades are sharp and can cut. Wrap the blade(s) or wear gloves and use extra caution when servicing blade(s).
10. Check brake operation frequently. Adjust and service as required.
11. Muffler, engine, and belt guards become hot during operation and can cause a burn. Allow to cool down before touching.
12. Do not change the engine governor settings or overspeed the engine.



DANGER: Your unit was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.

ASSEMBLY INSTRUCTIONS

IMPORTANT: After assembly, service engine with gasoline, and check oil level as instructed in the separate engine manual packed with your unit.

NOTE: Reference to right or left hand side of the unit is observed from the driver's seat, facing forward.

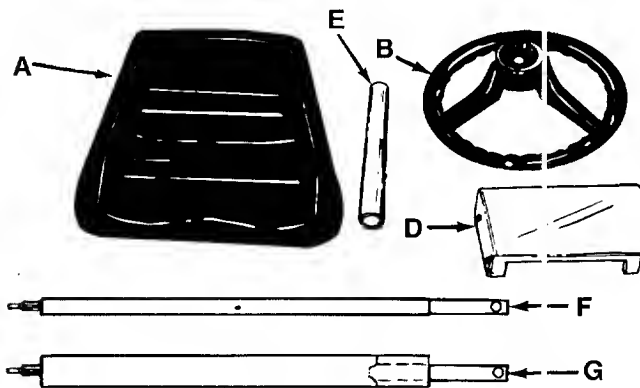


FIGURE 1.

This owner's manual covers various models of lawn tractors. Follow only those instructions which pertain to your model riding mower. All information for the 30" side discharge deck is included in this manual. Refer to the separate deck manual for all other decks.

UNPACKING

1. Remove the riding mower from the carton as follows. Open the top flaps. Remove all loose parts and carton inserts. Cut the front corners of the carton. Make certain brake is released, and push the unit out of the carton.
2. Remove page four from this manual and separate the contents of the hardware pack according to the illustration for identification.

← Loose Parts in Carton: (See Figure 1)

- A (1) Seat
- B (1) Steering Wheel
- D (1) Steering Gear Cover
- E (1) Steering Tube (Model 560)
- F (1) Steering Shaft (Model 560)
- G (1) Steering Shaft Assembly (Model 561)

BATTERY INFORMATION



WARNING

- Battery acid must be handled with great care as contact with it can burn and blister the skin. It is also advisable to wear protective clothing (goggles, rubber gloves and apron) when working with it.
 - Should battery acid accidentally splatter into the eyes or onto the face, rinse the affected area immediately with clean cold water. If there is any further discomfort, seek prompt medical attention.
 - If acid spills on clothing, first dilute it with clean water, then neutralize with a solution of ammonia/water or baking soda/water.
 - Since battery acid is corrosive, do not pour it into any sink or drain. Before discarding empty electrolyte containers, rinse them with a neutralizing solution.
 - NEVER connect or disconnect charger clips to battery while charger is turned on as it can cause sparks.
 - Keep all lighted materials (cigarettes, matches, lighters) away from the battery as the hydrogen gas generated during charging can be combustible.
 - As a further precaution, only charge the battery in a well-ventilated area.
- *Always shield eyes, protect skin and clothing when working near batteries.**

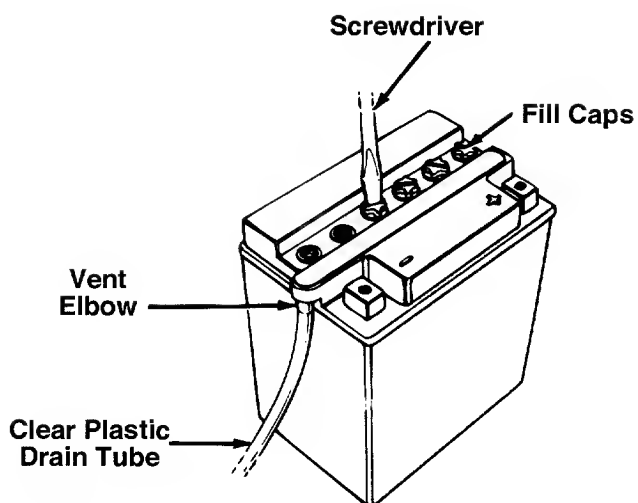


FIGURE 2.

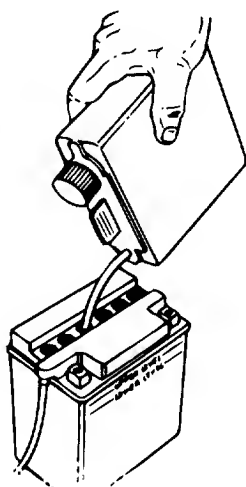


FIGURE 3.



DANGER

Battery contains sulfuric acid. Refer to warning on page 6. Antidote: EXTERNAL—Flush with water. INTERNAL—Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg or vegetable oil. Seek prompt medical attention. EYES: Flush with cool water for at least 15 minutes, then seek immediate medical attention.

Since batteries produce explosive gases, keep all lighted materials (cigarettes, lighters, matches, etc.) away. Be sure to charge battery only in well-ventilated areas. Make certain venting path of battery (drain tube) is always open.

**KEEP BATTERIES
OUT OF THE REACH OF CHILDREN!**

ACTIVATING THE BATTERY

Do not activate battery (fill with battery acid) until battery is actually placed in service. Be certain to read previous warnings before activating the battery.

1. Remove the battery from the lawn tractor by removing two wing nuts and the battery cover.
2. Open the battery pack. Be careful not to puncture the box. It contains the **battery fluid (acid)** in a plastic container and one short plastic tube.
3. Place the battery on a table or workbench. Make certain the long plastic drain tube is in place on the vent elbow.
4. Remove the six fill caps from the top of the battery with a screwdriver. Be careful not to damage the fill caps. See figure 2.
5. Place the battery fluid container on the table or workbench. Carefully cut off tip of the spout and attach the short plastic tube provided. Do not squeeze the container when cutting tip.
6. Fill each battery cell slowly and carefully to the UPPER LEVEL line marked on battery. See figure 3. Use caution as the acid level will rise rapidly after the bottom of the cell is filled.
7. **Allow battery to stand for 30 minutes** with the fill caps removed, while the plates absorb acid.

NOTE: You can continue assembling the lawn tractor while battery is standing for 30 minutes (after filling with acid), and later while you are charging the battery.

CHARGE THE BATTERY

IMPORTANT: To obtain the maximum life from your battery, it **MUST BE CHARGED** prior to initial use.

1. Check the acid level in each cell. If necessary, refill each cell with **battery acid** to the UPPER LEVEL line on battery. Replace the fill caps.
2. Before discarding the empty container, neutralize any residue with baking soda and rinse container with water. Puncture container several times before discarding.
3. **CHARGE THE BATTERY** after the 30 minute standing period. Use a 12-volt automotive type battery charger to **SLOW CHARGE THE BATTERY (DO NOT FAST CHARGE)**. DO NOT use a charger rated higher than 10 amps. **Charge the battery** for a **minimum of 2 hours** or until battery is fully charged.

NOTE: The information listed above is for initial charge. Refer to the Maintenance section of this manual for battery care and charging instructions to obtain the maximum life from your battery.

IMPORTANT: After the battery has been charged, add only distilled water. **DO NOT** add acid.

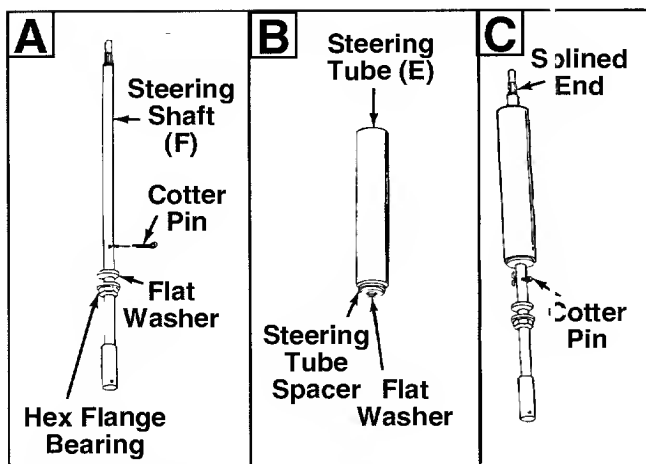


FIGURE 4.—Model 560 Shown

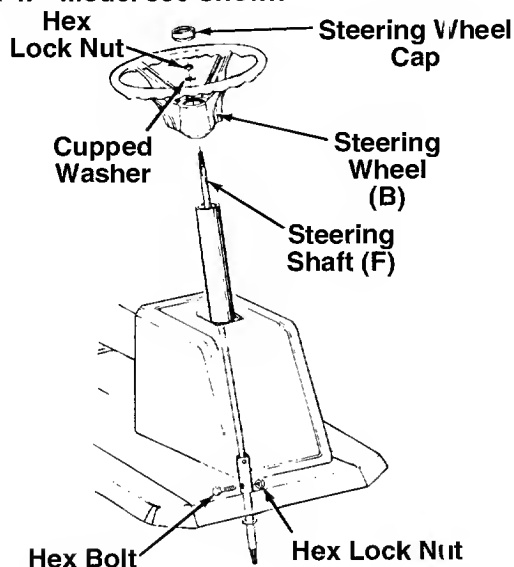


FIGURE 5.—Model 560 Shown

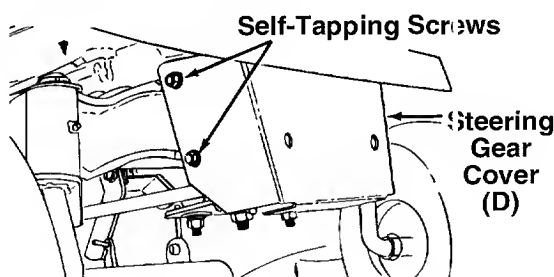


FIGURE 6.

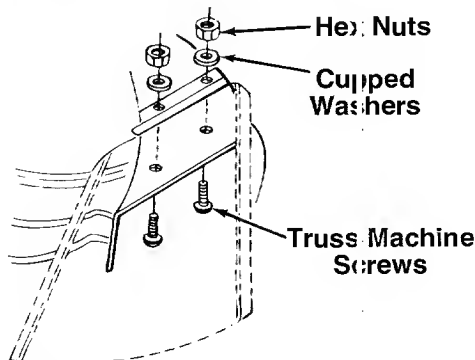


FIGURE 7.—Side Discharge Decks

ATTACHING THE STEERING MECHANISM (Hardware A)

NOTE: Steps 1 through 5 are for Model 560 only. For Model 561, proceed with step 6.

Model 560 Only:

1. Slide the **hex flange bearing** flat side up, onto the **steering shaft (F)**. Slide 1-1/4" diameter **flat washer** onto the **steering shaft** above the **hex flange bearing**. See figure 4A.
 2. Insert the **cotter pin** into the hole on **steering shaft (F)**. Secure in place by bending the ends of the cotter pin in opposite directions.
 3. Press the large **flat washer** (1-5/8" diameter) into the open side of the black plastic **steering tube spacer**.
 4. Press the **steering tube spacer** into one end of the **steering tube (E)**. Make certain spacer is seated securely into tube. See figure 4B.
 5. Hold the **steering shaft** upright, so that the **cotter pin** is closer to the top of the shaft. Slide the **steering tube spacer** and **steering tube** down over the splined end and threaded end of the **shaft** (above the cotter pin). See figure 4C.
 6. **Model 560:** Insert the **steering shaft** with assembled parts through the **steering housing cover**. **Model 561:** Slide the **steering shaft** assembly over the **steering end adapter**.
- All Models:** Secure the steering shaft with **hex bolt** and **hex lock nut**. See figure 5.
7. Lubricate the teeth of the pinion gear and steering gear segment with an automotive chassis grease.
 8. Position the front wheels of the riding mower so they are pointing straight forward.
 9. Place **steering wheel (B)** in position desired. Make certain the steering wheel is seated over the end of the steering shaft.
 10. Place the **cupped washer** with the cupped side down over the **steering shaft**. Secure with 5/16" **hex lock nut**. Place the **steering wheel cap** over the center of the **steering wheel** and seat it with your hand. See figure 5.
 11. Install the **steering gear cover (D)** as shown in figure 6, to cover the underside of the steering mechanism. Secure with two **self-tapping screws** on each side of the cover. Do not completely tighten any of these screws until all four of them are positioned correctly.

ATTACHING THE CHUTE DEFLECTOR

Attach the chute deflector as follows for all side discharge decks. For all other decks, follow the instructions in the separate deck manual packed with your unit.



WARNING: Do not operate your unit unless the chute deflector has been properly installed.

1. Remove the truss machine screws, cupped washers and hex nuts which are attached to the deck next to the chute opening.
2. Place the chute deflector in position as shown in figure 7. Secure with hardware just removed.

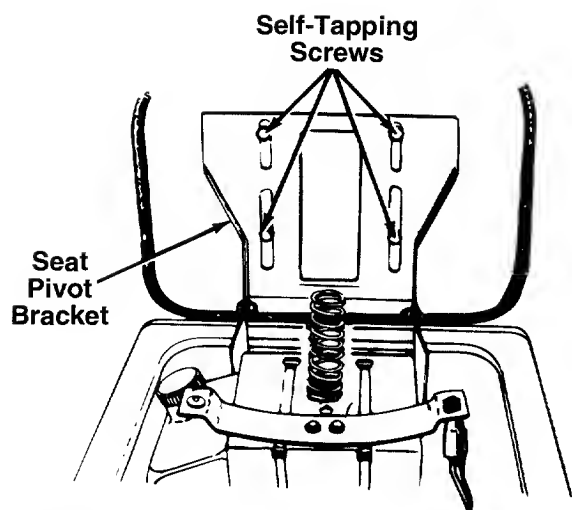


FIGURE 8.

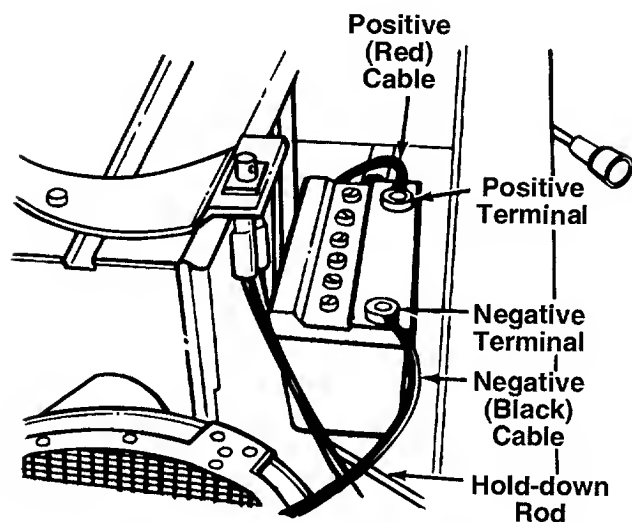


FIGURE 9.

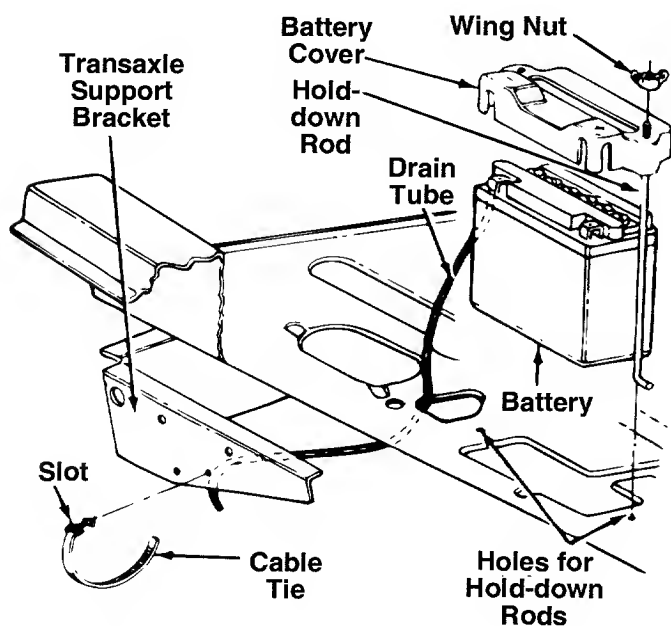


FIGURE 10.

ATTACHING THE SEAT (Hardware B)

The slots in the seat pivot bracket allow the seat to be adjusted to different positions. Place the seat against the seat pivot bracket in the position desired, and ← secure with four self-tapping screws. See figure 8.

TIRE PRESSURE

The tires on your unit may be over-inflated for shipping purposes. Reduce the tire pressure before operating the unit. Recommend operating tire pressure is approximately 12 p.s.i. (check sidewall of tire for tire manufacturer's recommended pressure).



WARNING: Maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

INSTALLING THE BATTERY (Hardware C)

1. Place the battery in the lawn tractor with the positive terminal to the front. The negative terminal goes to the rear of the unit. See figure 9.
2. Remove the hardware from the positive terminal. Place the positive (red) cable and the small red wire with the in-line fuse on the positive terminal. Secure with bolt, nut and lock washer just removed.
3. Remove the hardware from the negative terminal. Place the negative (black) cable on the negative terminal. Secure with bolt, nut and lock washer just removed.

4. Secure the battery in place with battery cover and hold-down rods. Secure with two wing nuts. See figure 10.
5. Route the clear plastic drain tube down through the hole in the frame, next to the engine drain plug, shown in figure 10.
6. Push the locking end of cable tie through the hole in transaxle support bracket. Place the end of cable tie through the slot so a loop is formed around the drain tube to secure it. Tighten cable tie and cut off excess end.

CONTROLS

This manual should be read in its entirety before operating the riding mower. **Be certain to service the engine with gasoline and check the oil level as instructed in the separate engine manual before starting the engine.** Study the operating instructions and safety precautions thoroughly to insure proper functioning of your mower and to prevent injury to yourself and others. Be sure to save this manual for future reference.

THROTTLE CONTROL

The throttle control is used to regulate the engine speed. The engine should be operated at full throttle when operating the cutting deck. See figure 11.

CHOKE CONTROL

The choke control is located on the console and is operated manually. Details for the choke operation are covered in the separate engine manual packed with your unit. See figure 11.

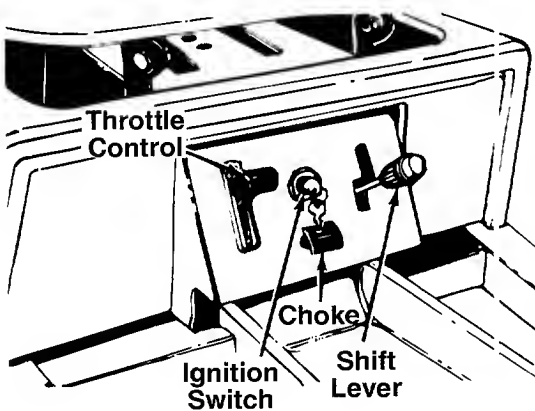


FIGURE 11.

IGNITION KEY

The key must be turned to the START position to start the engine. After the engine is running, let the key return to the ON position. Turn the key to the OFF position to stop the engine. Remove the key when the rider is not in use. See figure 11.

SHIFT LEVER

The shift lever is located on the left hand side of the console and has three positions, FORWARD, NEUTRAL and REVERSE. See figure 11. The clutch-brake pedal must be depressed and the riding mower must not be moving when shifting gears. Do not force the shift lever. If the shift lever will not shift, release the clutch-brake pedal slightly to line up the shifting collar in the transmission. Then try to shift gears.

SPEED CONTROL LEVER

The speed control lever allows you to regulate the ground speed of the riding mower to one of six settings. See figure 12. To set, depress clutch pedal. Push speed control lever outward and move backward to slow rider, move forward to increase speed. When desired speed has been obtained, place lever in that position. Whenever clutch is engaged, rider will automatically go to the pre-set speed.

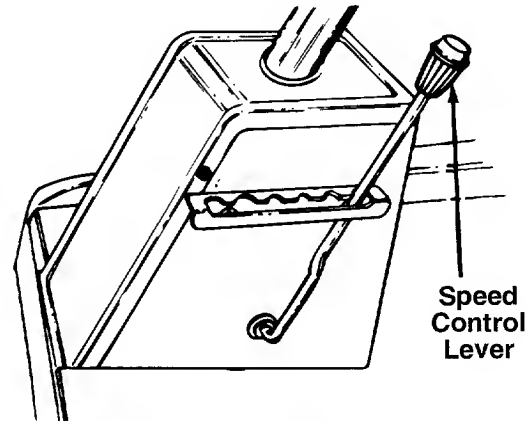


FIGURE 12.—Model 560 Shown

CLUTCH-BRAKE PEDAL

The clutch-brake pedal is located on the right side of the rider. Depressing the clutch-brake pedal part way disengages the clutch. Pressing the pedal all the way down disengages the clutch and engages the disc brake. See figure 13.

NOTE: The clutch-brake pedal must be depressed to start the engine. Parking brake must be engaged if operator leaves the seat with the engine running.

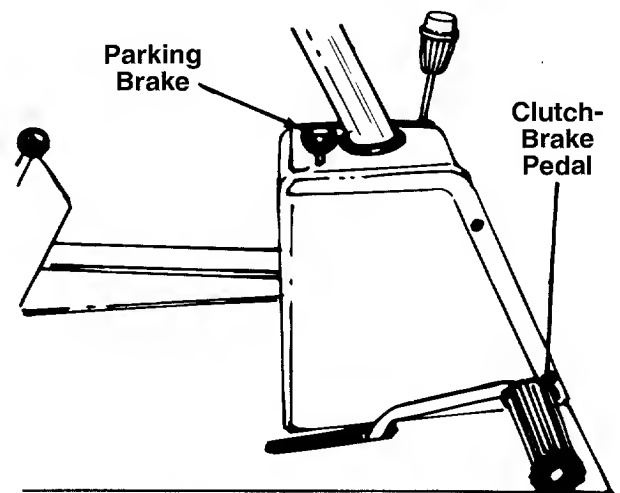


FIGURE 13.—Model 560 Shown

PARKING BRAKE

To set the parking brake, depress the clutch-brake pedal and press the parking brake knob down. To release the parking brake, depress and release the clutch-brake pedal. See figure 13.

BLADE ENGAGEMENT LEVER

The blade engagement lever is located on the right hand side of the deck. Figure 14 shows the blade engagement lever in the disengaged position.

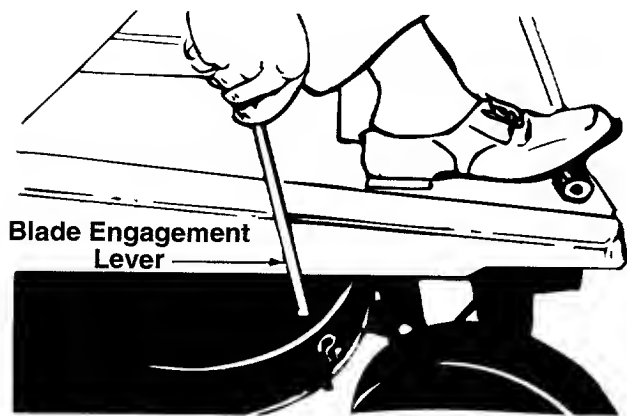


FIGURE 14.

To engage the blade, move the blade engagement lever toward the front of the unit. Move the lever toward the rear to disengage the blade.

DECK CUTTING HEIGHT LEVER

The deck cutting height lever is used to raise and lower the cutting deck, which sets the cutting height.

Move the lever outward, select desired cutting height and release lever. The lever may be set in any one of the six cutting height positions. See figure 15.



WARNING: The blade does not shut off when the deck is raised. You must place the Blade Engagement Lever in the disengaged (OFF) position.

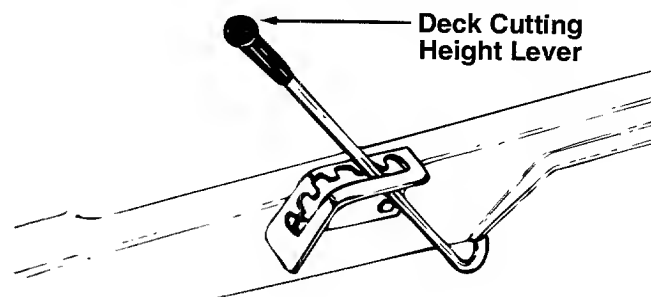


FIGURE 15.

SAFETY INTERLOCK SYSTEM

Interlock safety switches are located on the clutch-brake pedal, the blade engagement lever, shift lever and the seat.

Before the engine will start or if the operator leaves the seat, the clutch-brake pedal must be depressed all the way (parking brake engaged), and the blade engagement lever must be in the disengaged position.

In addition, the blade engagement lever must be in the disengaged position before the unit can be shifted into reverse.

OPERATION



WARNING

AVOID SERIOUS INJURY OR DEATH

- GO UP AND DOWN SLOPES, NOT ACROSS. • AVOID SUDDEN TURNS.
- DO NOT OPERATE THE UNIT WHERE IT COULD SLIP OR TIP.
- IF MACHINE STOPS GOING UPHILL, STOP BLADE(S) AND BACK DOWNHILL SLOWLY.
- DO NOT MOW WHEN CHILDREN OR OTHERS ARE AROUND.
- NEVER CARRY CHILDREN.
- LOOK DOWN AND BEHIND BEFORE AND WHILE BACKING.
- KEEP SAFETY DEVICES (GUARDS, SHIELDS, AND SWITCHES) IN PLACE AND WORKING.
- REMOVE OBJECTS THAT COULD BE THROWN BY THE BLADE(S).
- KNOW LOCATION AND FUNCTION OF ALL CONTROLS.
- BE SURE BLADE(S) AND ENGINE ARE STOPPED BEFORE PLACING HANDS OR FEET NEAR BLADE(S).
- BEFORE LEAVING OPERATOR'S POSITION, DISENGAGE BLADE(S), PLACE THE SHIFT LEVER IN NEUTRAL, ENGAGE BRAKE LOCK, SHUT ENGINE OFF AND REMOVE KEY.

READ OPERATOR'S MANUAL

IMPORTANT: This unit is equipped with a **safety interlock system** for your protection. The purpose of the safety interlock system is to prevent the engine from cranking or starting unless the clutch-brake pedal is depressed and the blade engagement lever is in the disengaged position. In addition, the blade engagement lever must be in the disengaged position when the unit is put into reverse or the engine will shut off. If the operator leaves the seat with the blade engagement lever engaged and/or without setting the parking brake, the engine will shut off.



WARNING: Do not operate the rider if the interlock system is malfunctioning because it is a safety device, designed for protection.

GAS AND OIL FILL-UP

Check oil level and add if necessary. Service the engine with gasoline as instructed in the separate engine manual packed with your rider. Read instructions carefully.



WARNING: Never fill fuel tank in doors, with engine running or while engine is hot.

STARTING THE ENGINE



WARNING: Get on and off the unit from the left hand side to avoid possible contact with the blade engagement lever (located on the right hand side).

1. Attach the wire to the spark plug.
2. Depress the clutch-brake pedal and lock it down.
3. Move the blade engagement lever back to the disengaged position.
4. Set throttle control in the FAST position. Pull out the choke control.

NOTE: A warm engine may not require choking.

5. Place the shift lever in the NEUTRAL position.
6. Turn the ignition key to the START position. As soon as the engine starts, let the key return to the ON position. See figure 11.
7. Push choke knob in gradually. Move throttle control to desired engine speed.
8. To stop, turn the ignition key to the OFF position. Remove the key when the rider is not in use.

PUTTING THE RIDING MOWER IN MOTION

NOTE: Parking brake must be disengaged before unit is put into motion.

1. Advance the throttle control to full throttle to prevent strain on the engine and to operate the cutting blades.
2. Place the shift lever in either the FORWARD or REVERSE position.



WARNING: Look to the rear before backing up.

3. Slowly release the clutch-brake pedal.
4. To stop, depress the clutch-brake pedal.

NOTE: When operating the unit initially, there will be little difference between the highest two speeds until after the belts have seated themselves into the pulleys during the break-in period.

5. The blades can be engaged either while moving or while standing still. Move the blade engagement lever forward slowly until the blades are turning.



WARNING: When the blades are engaged, keep feet and hands away from the discharge opening, the blades or any part of the deck.

STOPPING

Engine—Turn the ignition key to the left to the OFF position.

Rider—Depress the clutch-brake pedal.

Blades—Pull the blade engagement lever all the way back.

Be sure that the lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. For best results and to insure more even grass distribution, do not mow when lawn is excessively wet.



WARNING: Before leaving the operator's position for any reason, disengage the blades, place the shift lever in neutral, engage the parking brake, shut engine off and remove the key.

When stopping the unit to empty a grass bag, etc., follow the instructions above. This procedure will also eliminate "browning" the grass, which is caused by hot exhaust gases from a running engine.

IMPORTANT: If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower.

NOTE: If any problems are encountered, refer to the Trouble Shooting Guide on pages 20 and 21.

If unit stalls with speed control in high speed, or if unit will not operate with speed control lever in a low speed position, proceed as follows.

1. Place shift lever in Neutral.
2. Restart engine.
3. Place speed control lever in high speed position.
4. Release clutch-brake pedal fully.
5. Depress clutch-brake pedal.
6. Place speed control lever in desired position.
7. Place shift lever in either Forward or Reverse, and follow normal operating procedures.

ADJUSTMENTS



WARNING: Do not at any time make any adjustment to riding mower without first stopping engine and disconnecting spark plug wire.

THROTTLE CONTROL

If adjustment is needed, refer to the separate engine manual packed with your unit.

SPEED CONTROL LEVER ADJUSTMENT

NOTE: When operating the unit initially or after replacing the belts, there will be little difference between the highest two speeds until after the belts have gone through a break-in period and have seated themselves into the pulleys.

If the full range of speeds cannot be obtained on your unit, adjust the speed control lever as follows.

1. Start the engine.
2. Place the shift lever in Neutral position.
3. Place the speed control lever in high speed position.
4. Release the clutch-brake pedal completely, then slowly depress the pedal all the way (to park position). Hold the pedal in this position.
5. Turn the engine off.
6. After engine stops completely, release the clutch-brake pedal.
7. Disconnect the speed control rod by removing the hairpin cotter and flat washer. See figure 16.

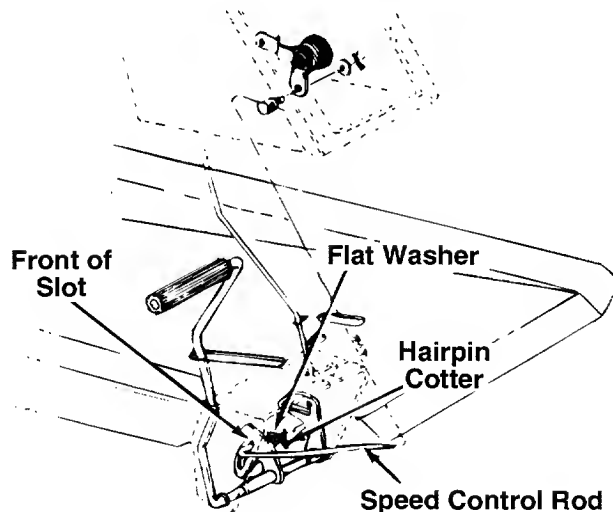


FIGURE 16.

8. Place the speed control lever in 2nd speed position.
9. Adjust the rod by threading it in or out of the ferule until it is all the way to the front of the slot as shown in figure 16.
10. Secure the speed control rod using the flat washer and hairpin cotter.

NEUTRAL ADJUSTMENT (See Figure 17)

1. Place the transmission in neutral. (The unit will move freely when pushed forward and backward with the parking brake released).
2. Loosen the bolt which secures the shift lever assembly to the shift lever adjusting link.
3. Place the shift lever in the neutral slot.
4. Tighten the hex bolt to 13 foot pounds.

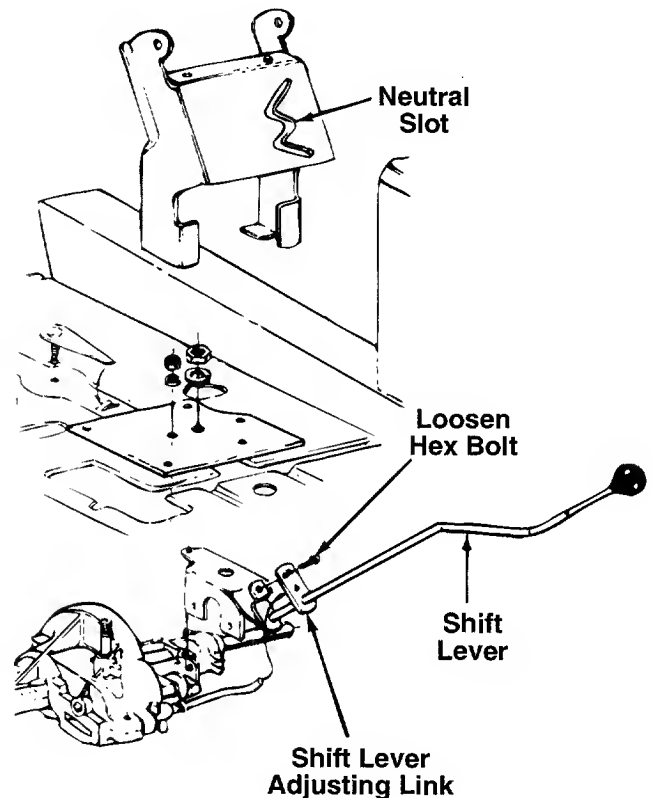


FIGURE 17.

BRAKE ADJUSTMENT (See Figure 18)

The brake is located by the left rear wheel inside the frame. During normal operation of this machine, the brake is subject to wear and will require periodic examination and adjustment.

To adjust the brake, adjust the nut so the brake starts to engage when the brake lever is 1/4" to 5/16" away from the axle housing.

NOTE: Figure 18 is shown with the unit tipped up on rear wheels for clarity only.

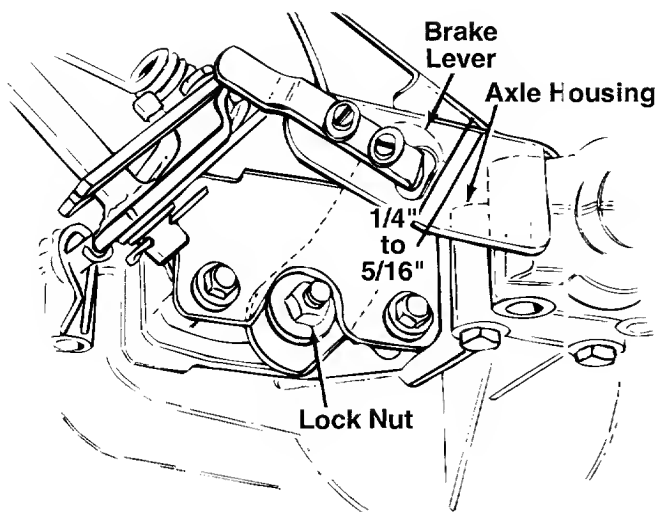


FIGURE 18.

WHEEL ALIGNMENT

The caster (forward slant of the king pin) and the camber (tilt of the wheels out at the top) require no adjustment. Automotive steering principles have been used to determine the caster and camber on the mower. The front wheels should toe-in 1/8 inch. See figure 18. To adjust, follow these steps:

1. Remove the cotter pin and flat washer which hold the tie rod to the axle bracket. See figure 19.
2. Adjust the tie rod in or out until the wheels toe-in approximately 1/8" (Dimension "A" should be approximately 1/8" less than dimension "E"). See figure 20.
3. Replace the tie rod into the wheel bracket, and replace the cotter pin and flat washer.

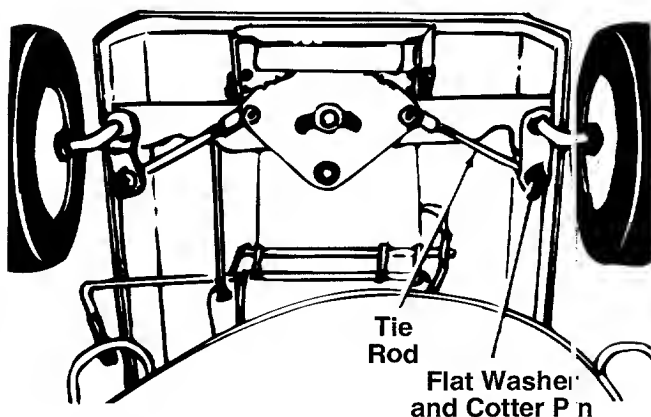


FIGURE 19.

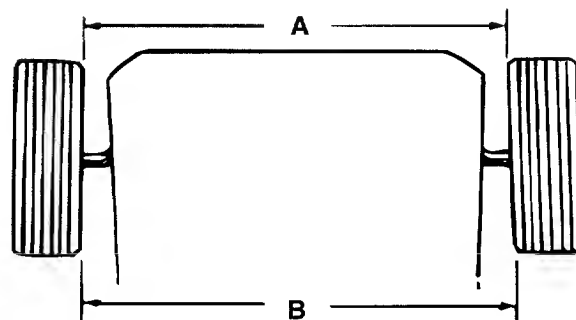


FIGURE 20.

DECK ADJUSTMENT

The deck adjustments which follow are for 30" decks only. For 32" or 38" decks, refer to the separate deck manual packed with your rider.

Side to Side Leveling

NOTE: Check tire pressure in all four tires before leveling the deck. Recommended tire pressure is 12 p.s.i.

If an uneven cut is obtained, the deck may be leveled. A deck adjustment rod is located on the right side of the unit. See figure 21.

To adjust the deck, loosen the two hex nuts at the right rear deck link assembly. Thread the hex nuts up or down the deck adjustment rod as necessary. Retighten the hex nuts.

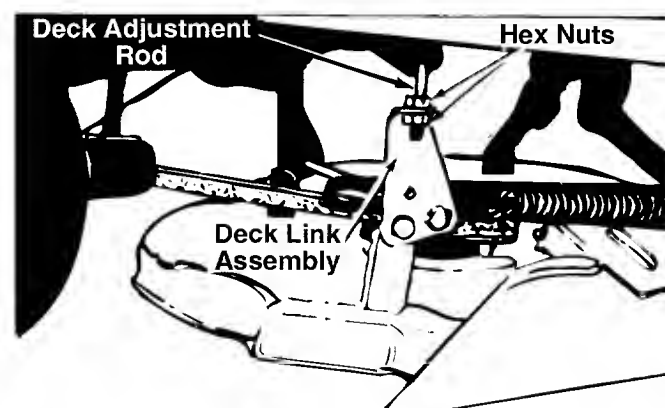


FIGURE 21.

Deck Pitch

The front of the deck should be approximately 1/4" to 3/8" lower than the rear of the deck. Adjust the pitch as follows.

1. Place the deck in the engaged position.

2. Remove the hairpin cotter and flat washer which hold the deck lift connecting rod to the front deck lift assembly. See figure 22.
3. Remove the connecting rod from the deck lift assembly and thread it in or out of the ferrule as necessary. See figure 22. Replace the rod.

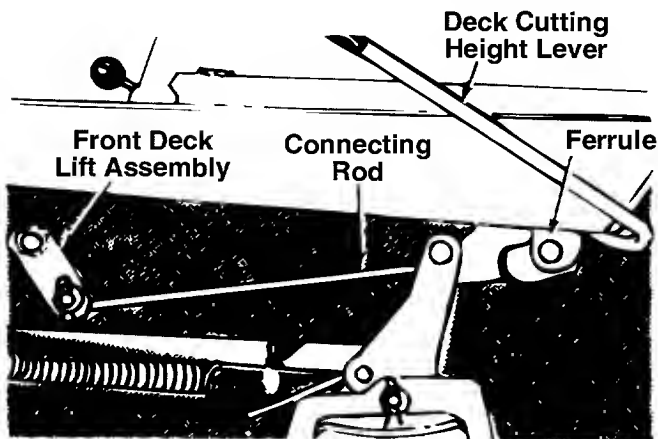


FIGURE 22.

BLADE BRAKE ADJUSTMENT (See Figure 23)



WARNING: Make certain spark plug wire is disconnected and grounded against the engine while making this adjustment.

To adjust the blade brake, proceed as follows.

1. Disconnect the brake cable from the lower inside belt guard on the rider by removing the hairpin cotter, flat washer and clevis pin.
2. Lower the deck to its lowest position. Place the blade engagement lever in the disengaged position.
3. Pull the brake cable back so there is no slack in the cable. **Do not** put tension on the cable. Select the hole in the lower inside belt guard which aligns with the end of the cable. Move the end of the brake cable **forward** to the next hole in the belt guard (which will give a small amount of slack in the cable), and reassemble.

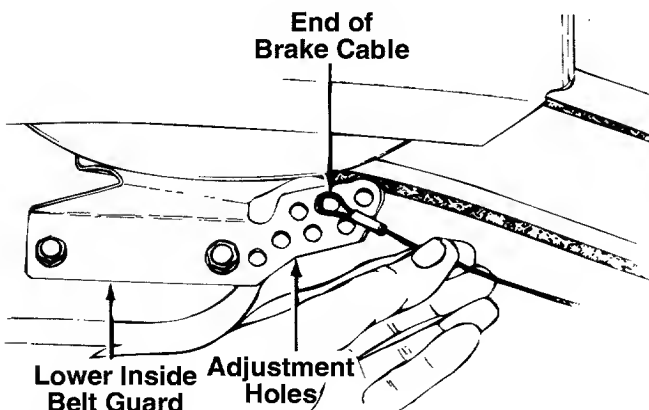


FIGURE 23.

CARBURETOR ADJUSTMENT



WARNING: If any adjustments are made to the engine while the engine is running (e.g. carburetor), disengage all clutches and blades. Keep clear of all moving parts. Be careful of heated surfaces and muffler.

Minor carburetor adjustment may be required to compensate for differences in fuel, temperature, altitude and load. To adjust the carburetor, refer to the separate engine manual packed with your unit.

NOTE: A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor.

LUBRICATION



WARNING: Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on riding mower.

Engine. Maintain the engine oil according to the engine manual.

Front Wheels. Front wheels which have bronze bearings are provided with grease fittings. Lubricate at least once a season with automotive multi-purpose grease. Wheels which have ball bearings do not require lubrication.

Linkage. Oil all deck linkage and height adjustment linkage.

Transaxle. It is lubricated at the factory and does not require checking. Lubricate with 10 oz. of grease (Part No. 737-0148) if disassembled.

MAINTENANCE



WARNING: Disconnect spark plug wire and ground it against the engine before performing any repairs or maintenance.

CUTTING BLADE

A. Removal for Sharpening or Replacement



WARNING: Be sure to disconnect and ground the spark plug wire before working on the cutting blade to prevent accidental engine starting. Protect hands by using heavy gloves or a rag to grasp the cutting blade.

1. Remove the large bolt and lock washer which holds the blade and adapter to the blade spindle. See figure 24.

2. Remove the blade and adapter from the spindle.
3. If the blade or blade adapter needs replacing, remove the two small bolts, lock washers and nuts which hold the blade to the adapter. See figure 24.

B. Sharpening

Remove the cutting blade by following the directions of the preceding section.

When sharpening the blade, follow the original angle of grind as a guide. It is **extremely important** that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

The blade can be tested for balance by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.

NOTE: It is recommended that the blade always be removed from the adapter for the best test of balance.

C. Reassembly

Before reassembling the blade and the blade adapter to the unit, lubricate the spindle and the inner surface of the blade adapter with light oil. Lubricating the bolt holes, bolts and inner surface of the nuts with light oil is also recommended. Engine oil may also be used.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.

Blade Mounting Torque

3/8" Dia. Bolt, 450 in. lb. min., 600 in. lb. max.

5/16" Dia. Bolt, 200 in. lb. min., 350 in. lb. max.

NOTE: To insure safe operation, ALL nuts and bolts must be checked periodically for correct tightness.

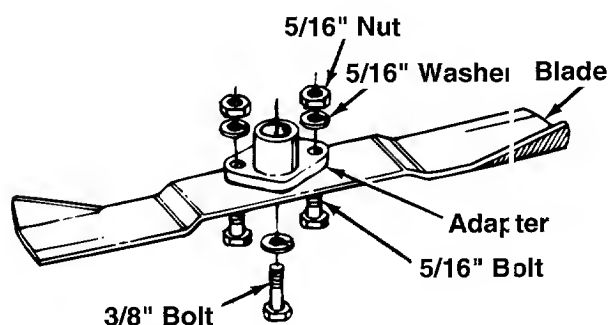


FIGURE 24.

FUEL FILTER

Your unit is equipped with a replaceable in-line fuel filter. Replace filter whenever contamination or dis-

coloration is noticed. Order replacement filter through your engine authorized service dealer.

CLEANING ENGINE AND BLADE HOUSING

Any fuel or oil spilled on the machine should be wiped off promptly. Grass, leaves, and other dirt must not be left to accumulate around the cooling fins of the engine or on any part of the machine.

Clean the underside of the blade housing after each mowing.

BELTS

Check that belts are free of oil or dirt. Wipe the belts periodically with a clean rag.

ENGINE

Refer to separate engine manual for all engine maintenance instructions.

Maintain engine oil as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.

Service air cleaner every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced.

The spark plug should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specification.

BATTERY CARE AND MAINTENANCE

CHECK FLUID LEVEL

Check fluid level inside each cell of the battery every two weeks and before and after charging. Always keep level between the LOWER LEVEL and UPPER LEVEL lines on battery.

Add only distilled water. Never add additional acid or any other chemicals to the battery after initial activation.

NOTE: After operating the lawn tractor for a long period of time, check the fluid level in the battery as it can overheat and lose fluid.

CHARGING THE BATTERY

The engine is equipped with an alternator which charges battery when tractor is operated. Under normal conditions, the battery only needs to be charged before, during and after off-season storage. Follow the instructions under "Off-Season Storage."

To charge the battery: Make certain fluid level in each cell is between LOWER LEVEL and UPPER LEVEL. Use a 12 volt automotive charger which is rated less than 10 amps. Charge for 14 to 16 hours. **DO NOT CHARGE LONGER THAN 30 HOURS.**

REMOVING / INSTALLING / JUMP STARTING



WARNING: When removing or installing the battery, follow these instructions to prevent the screwdriver from shorting against the frame.

Removing the Battery: Disconnect negative cable first, then positive cable.

Installing the Battery: Connect positive cable first, then negative cable.

Jump Starting

1. First, connect end of one jumper cable to the positive terminal of the good battery, then the other end to the positive terminal of the dead battery.
2. Connect the other jumper cable to the negative terminal of the good battery, then to the **FRAME OF THE UNIT WITH THE DEAD BATTERY.**



WARNING: Failure to use this procedure could cause sparking, and the gas in either battery could explode.

CLEAN THE BATTERY

Clean the battery by removing it from the unit and washing with a baking soda and water solution. If necessary, scrape the battery terminals with a wire brush to remove deposits. Coat terminals and exposed wiring with grease or petroleum jelly to prevent corrosion.

BATTERY FAILURES

Some common causes for battery failure are: incorrect initial activation, lack of water, adding chemicals other than water after initial activation, undercharging, overcharging, corroded connections, freezing. **These failures do not constitute warranty.**

TIRES

Recommended operating tire pressure is approximately 12 p.s.i. (check sidewall of tire for tire manufacturer's recommended pressure). Maximum tire pressure under any circumstances is 30 p.s.i. Equal tire pressure should be maintained on all tires.

When installing a tire to the rim, be certain rim is clean and free of rust. Lubricate both the tire and the rim generously. Never inflate to over 30 p.s.i. to seat beads.



WARNING: Excessive pressure (over 30 p.s.i.) when seating beads may cause tire/rim assembly to burst with force sufficient to cause serious injury.

REMOVING THE DECK

(30" Side Discharge Decks Only)

1. Disconnect the spark plug wire and ground it against the engine.
2. Move the blade engagement lever to the disengaged position.

3. Remove one hex bolt and lock washer at the front of lower outside belt guard. A 1/2" wrench is required. See figure 25.

4. Loosen (Do Not remove) the second bolt. See figure 25.

NOTE: Rear wheel was removed for clarity only. It is not necessary to remove the wheel when removing the deck.

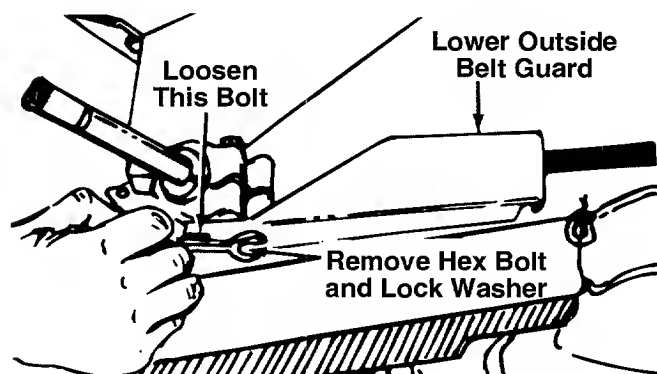


FIGURE 25.

5. Pivot the lower outside belt guard out and away from the engine pulley.

6. Disconnect the brake cable from the lower inside belt guard by removing the hairpin cotter, clevis pin and flat washer. See figure 26.

7. Remove the front hex bolt from the lower inside belt guard as shown in figure 26.

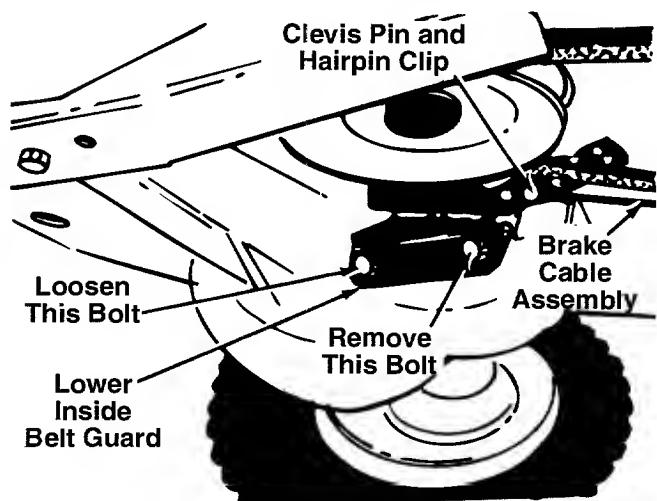


FIGURE 26.

8. Loosen the second bolt (Do Not remove), then pivot the guard downward, and slip the deck belt off the engine pulley. See figures 26 and 27.

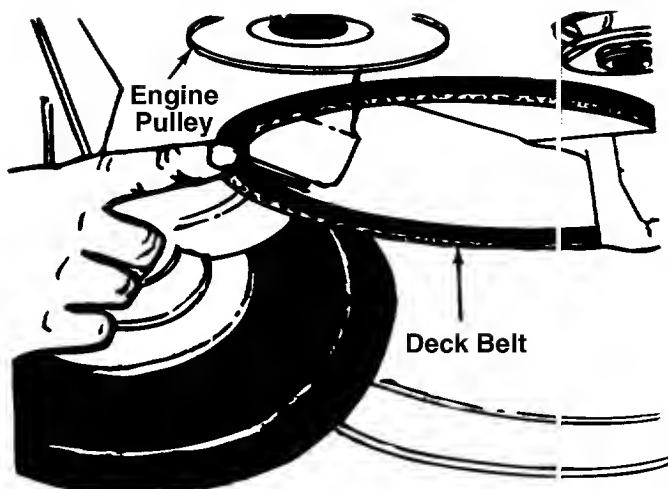


FIGURE 27.

9. Remove the three hairpin clips and flat washers which hold the deck links to the rider. Two are located at the rear of the deck. See figure 28. One is located at the front of the deck.

To reattach the deck, follow instructions in reverse order. Adjust the blade brake cable as instructed in the adjustment section.

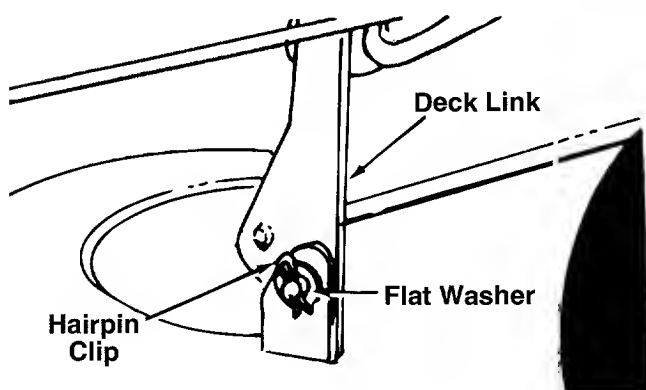


FIGURE 28.

BELT REMOVAL AND REPLACEMENT

Deck Belt (30" Side Discharge Decks Only)

1. Remove the deck from the riding mower as described in previous section.
2. Remove the three belt keeper studs on the deck. See figure 29.
3. Remove and replace the deck drive belt.

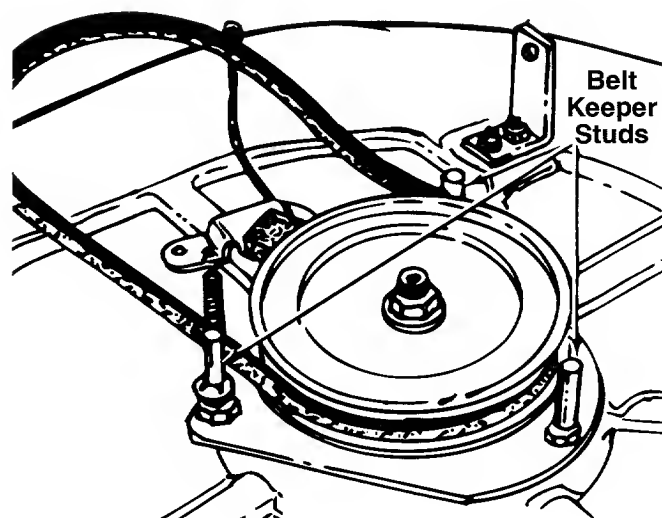


FIGURE 29.

DRIVE BELT

NOTE: It is recommended that the entire instructions on belt removal and replacement be read before changing the belts.

1. Disconnect the spark plug wire and ground it against the engine.
2. Remove the deck as described previously (30" side discharge decks) or in the separate deck manual.
3. Unhook the idler spring from the rider frame. See figure 30.



FIGURE 30.

4. Remove the hex bolt, nut and lock washer at the torque rod bracket and transaxle. See figure 31.
5. Remove the hex bolt which holds the torque rod bracket to the torque rod, and remove bracket.

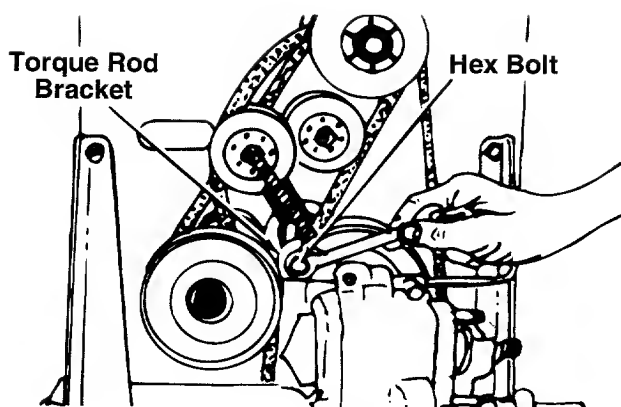


FIGURE 31.

6. Slip the "V"-belt off the variable speed pulley and transaxle pulley. See figure 32.

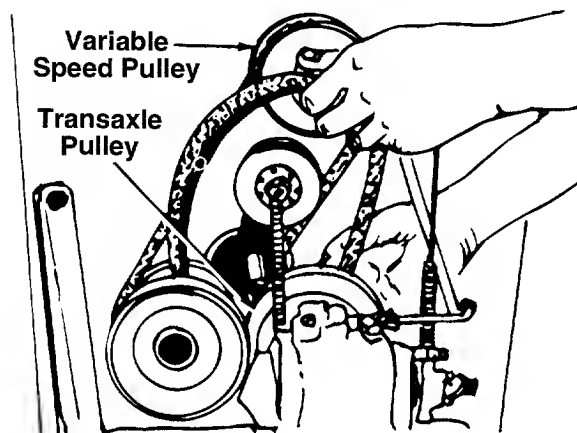


FIGURE 32.

7. Remove two hex bolts, nuts and lock washers from the engine pulley belt guard at rider frame to allow the engine pulley belt guard to drop down out of the way. See figure 33.

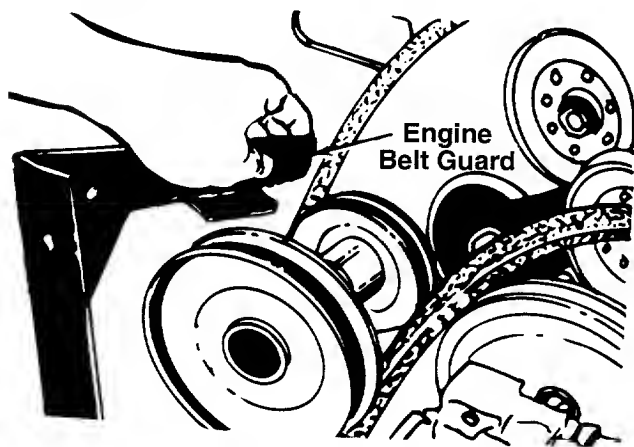


FIGURE 33.

8. Remove the idler pulley by removing the hex lock nut. See figure 34.

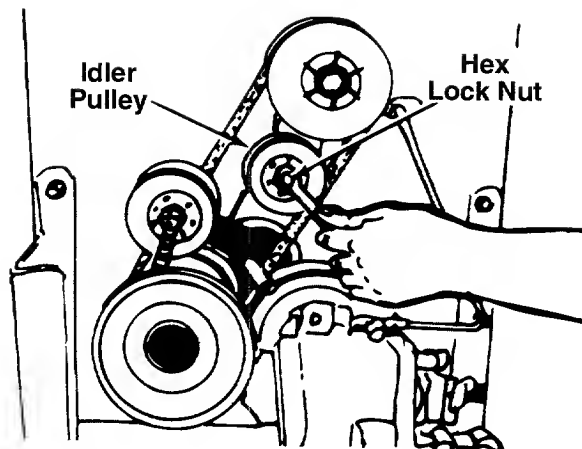


FIGURE 34.

9. Remove and replace the "V"-belt. See figure 35.

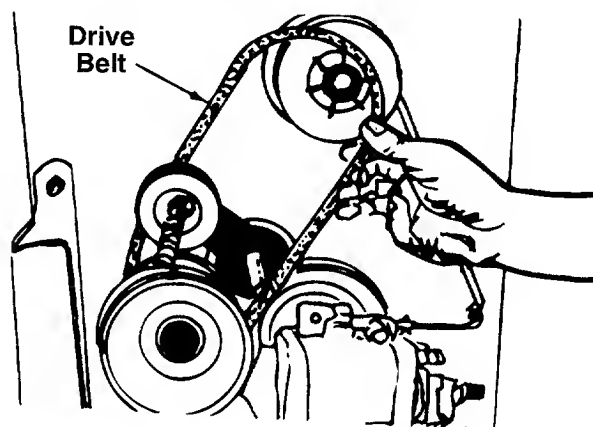


FIGURE 35.

10. Upon reassembly of idler pulley, be certain the hub side of idler goes against the idler bracket. See figure 36.
11. When sliding the idler pulley on the idler bracket, be certain the belt is between the pulley and guide pin. See figure 37.

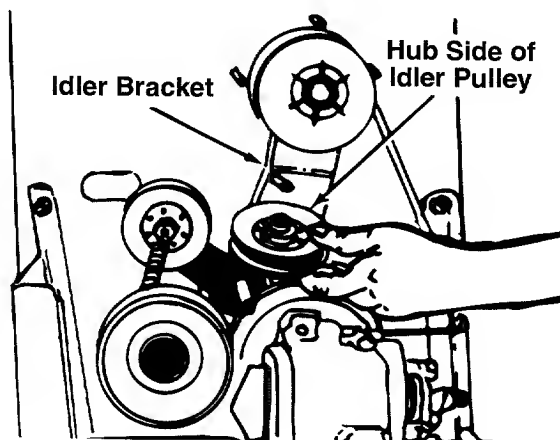


FIGURE 36.

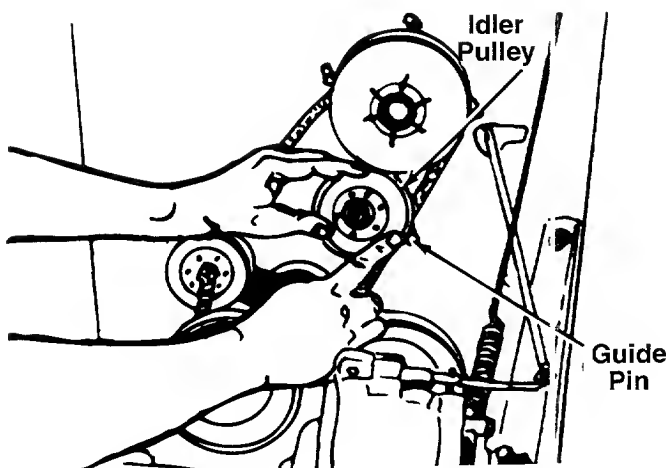


FIGURE 37.

12. Reverse the above steps (paying close attention to steps 10 and 11) when reassembling the new belts.

NOTE: Be certain all belts are inside belt guards and keepers. Also, be sure to reassemble the safety wire at the deck chute.

OFF-SEASON STORAGE

If the machine is to be inoperative for a period longer than 30 days, prepare for storage as follows.

1. Clean the engine and the entire unit thoroughly.
2. Lubricate all lubrication points. Wipe the entire machine with an oiled rag to protect the surfaces.
3. Refer to the engine manual for correct engine storage instructions. The engine must be completely drained of fuel to prevent gum deposits from forming on essential carburetor parts, fuel lines and fuel tanks.
4. **Charge battery fully.** The battery loses some of its charge each day when the unit is not used. **NEVER** store battery without a full charge. Recharge battery before returning to service or every two months, whichever occurs first.
5. Store unit in a clean, dry area. Do not store next to corrosive materials, such as fertilizer.

NOTE: When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rustproof the equipment. Using a light oil or silicone, coat the equipment, especially any chains, springs, bearings and cables.

BELT TROUBLE SHOOTING GUIDE

Failure	Probable Cause	Corrective Action
1 Broken Belt	1A Sudden stop or shock load to belt 1B Incorrect belt used 1C Abrupt engagement 1D Defective or damaged belt	1A Inspect rider for cause such as foreign objects stuck in between deck and frame or belt path. Remove obstruction and inspect for damage. Replace belt per parts list in this manual. 1B Replace with proper belt only. See parts list in this manual. Roll belt onto pulley. Do not use a screwdriver to push or pry belt onto pulley. The sharp bend can damage internal cords. 1C Slower engagement required. 1D Refer to 1B.
2 Belt Shreds	2A Belt guides or guards incorrectly adjusted 2B Pulleys not aligned 2C Bad pulley—rough, rusty, chipped, bent, frozen bearing, etc.	2A Belt guides and guards should be adjusted to approximately 1/16 to 1/8 inch from belt when in the engaged position. 2B Realign pulleys to be within approximately 1/16 inch of each other. Check with straight edge. Be sure fastening hardware is tight. 2C Replace as necessary. Adjust as per 2B.
3 Belt Comes Off	3A Belt stretched 3B Broken or weak idler spring	3A Adjust as necessary when applicable. Refer to 1B. 3B Replace.

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Engine will not crank	Battery installed incorrectly	The battery must be installed with negative terminal attached to black ground wire. Negative terminal is identified at the post by "NEG", "N" or "-". The positive terminal, identified by "POS", "P" or "+", must be attached to the big red wire which goes to the solenoid.
	Battery is dead or weak	Check fluid level in battery. If fluid is low, fill to UPPER LEVEL line with water. Charge with taper charger until fully charged.
	Blown fuse or circuit breaker	Replace fuse with 7-1/2 amp. automotive type fuse. Fuses seldom fail without a reason. The problem must be corrected. Check for loose connections in the fuse holder. Replace fuse holder if necessary. A dead short may be in the cranking or charging circuit where the insulation may have rubbed through and exposed the bare wire. Replace the wire or repair with electrician's tape if the wire strands have not been damaged. Note: Look for a wire pinched between body panels, burned by the exhaust pipe or muffler or rubbed against a moving part.
	Engine ground wire loose	Engine should have a black ground wire running from engine to frame or mounting bolt.
	Safety switch button not depressed	There are two switches in the starting circuit of your unit: the clutch pedal switch and the deck lift lever switch. Make certain the actuator is fully depressing the buttons on each switch.
Engine cranks but will not start	Throttle or choke not in starting position	Check owner's guide for correct position for throttle control and choke for starting.
	No spark to spark plug	Spark plug lead disconnected. Connect lead. Hold spark plug lead away from engine block about 1/8". Crank engine. There should be a spark. If not, have engine repaired at authorized engine service dealer. Faulty spark plug. To test, remove spark plug. Attach spark plug lead to spark plug. Ground the spark plug body against the engine block. Crank the engine. The spark plug should fire at the electrode. Replace if it does not.
	No fuel to the carburetor	Gasoline tank empty. Fill. Fuel line or in-line fuel filter plugged. Remove and clean fuel line. Replace filter if necessary.
	Air filter dirty	If the air cleaner is dirty, the engine may not start. Clean or replace as recommended by the engine manufacturer.
Engine smokes	Engine loses crankcase vacuum	Dipstick not seated or broken. Replace defective part. Engine breather defective. Replace.
Excessive vibration	Bent or damaged blade spindle	Stop engine immediately. Check all pulleys, blade adapters, keys and bolts for tightness and damage. Tighten or replace any damaged parts.
	Bent blade	Stop engine immediately. Replace damaged blade. Only use original equipment blades.
Mower will not discharge grass or leaves uncut strips	Engine speed low Speed selection Blades short or dull	Throttle must be set at full throttle. Use lower ground speed. The slower your ground speed, the better the quality of cut. Sharpen or replace blades (uncut strip problem only).

If the above steps fail to correct the problem, take the unit to your local authorized service dealer for repair.

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Steering Wheel (4 Spoke)*	731-0806A
Steering Wheel Cap (Round)	731-0220
Front Hub Cap (Black)	731-0484A (2)
Front Wheel Bearings (Plastic)	741-0487A (4)
Front Wheel Bearings (Ball Bearings)	741-0569 (4)
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Ignition Key	725-0201
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Twin Bag Grass Collector	190-063-000
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